

OFFICE OF NAVAL RESEARCH



VIRTUAL AT SEA TRAINING (VAST)

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VIRTUAL AT SEA TRAINING

Project VAST emerged from necessity to find a technological solution to readiness problem posed by reduction in naval training ranges.

While meeting this objective, it became clear that embedded, Virtual Reality-enhanced training represents a new paradigm that could resolve problems with current operational training:

- (1) Degradation in readiness over the IDTC due to:**
 - Erosion of individual/team skills with time**
 - Dilution of crew/team skills due to turnover of personnel**
- (2) Expense and scheduling availability of training ranges**

VAST represents a paradigm shift in operational training that transcends the immediate problem of training ranges.



Required Capabilities for Virtual At-Sea Training System



X: Full capability
P: Partial Capability

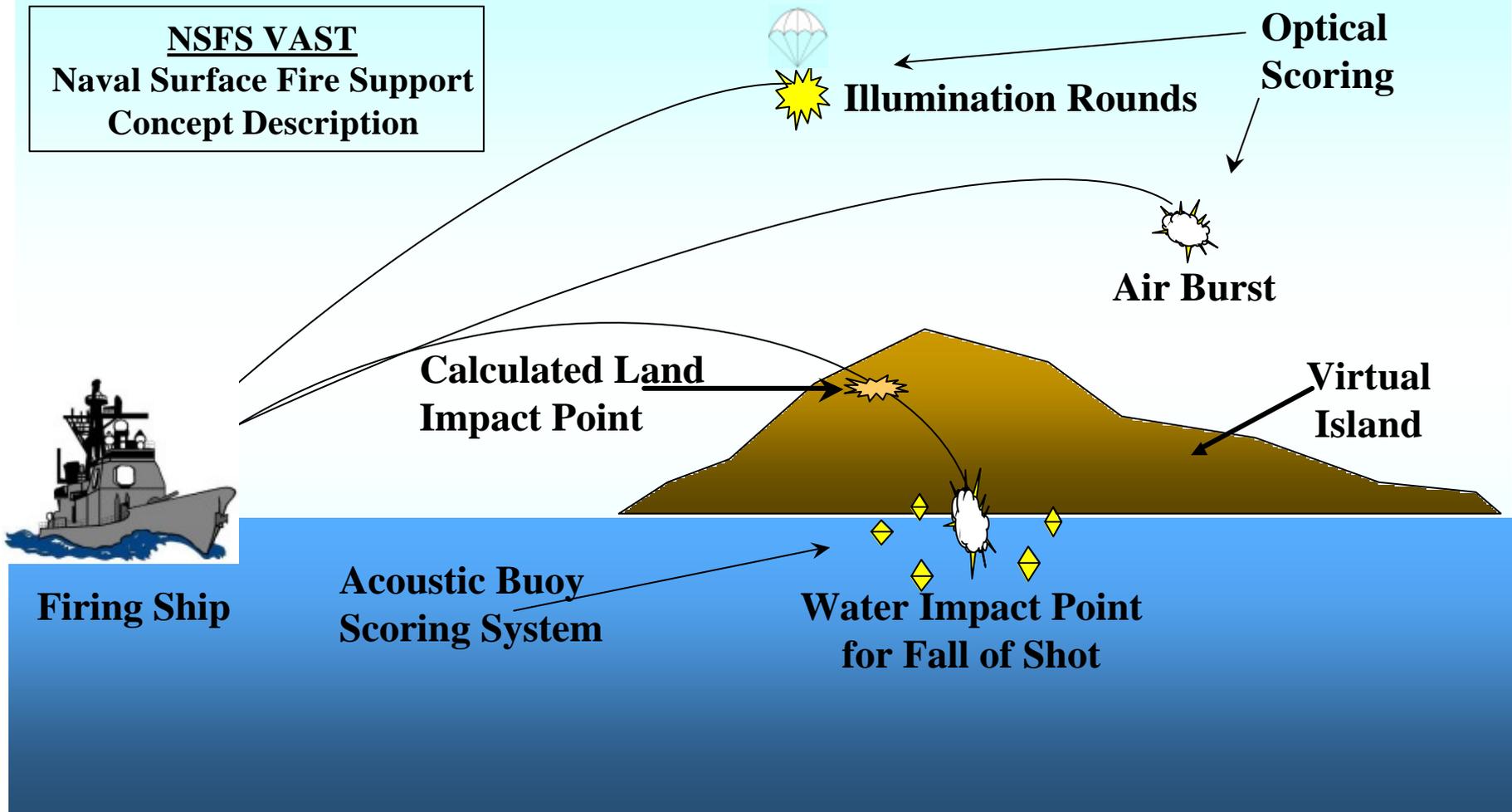
Warfare Training Capability Provided	Live-Fire Range	Prototype VAST ¹	Surface VAST	Aviation VAST	USW VAST	Cum VAST
NSFS Live Fire Training	X	X	X			X
Support FXP-5 Qualifications	X	P	X			X
Air-Ground Ordnance Delivery	X			X		X
Coordinated surface, air and artillery fires	X			P		P
Amphibious landing with supporting live fire	X					
Combined exercises with allies	X			P		P
Co-located underwater warfare range	X				X	X
Use of sea-based high-altitude flight profiles	X			X		X
Low-traffic air space	X			X		X
Explosive Ordnance Disposal training	X					
Training of USMC Forward Observers	X	X	X	X		X
Training of Fire Coordination Teams	X	X	X	X		X
Day-night training capability	X		X		X	X
Portability for en route training & mission rehearsal		X	X	X	X	X

¹To be deployed October 02

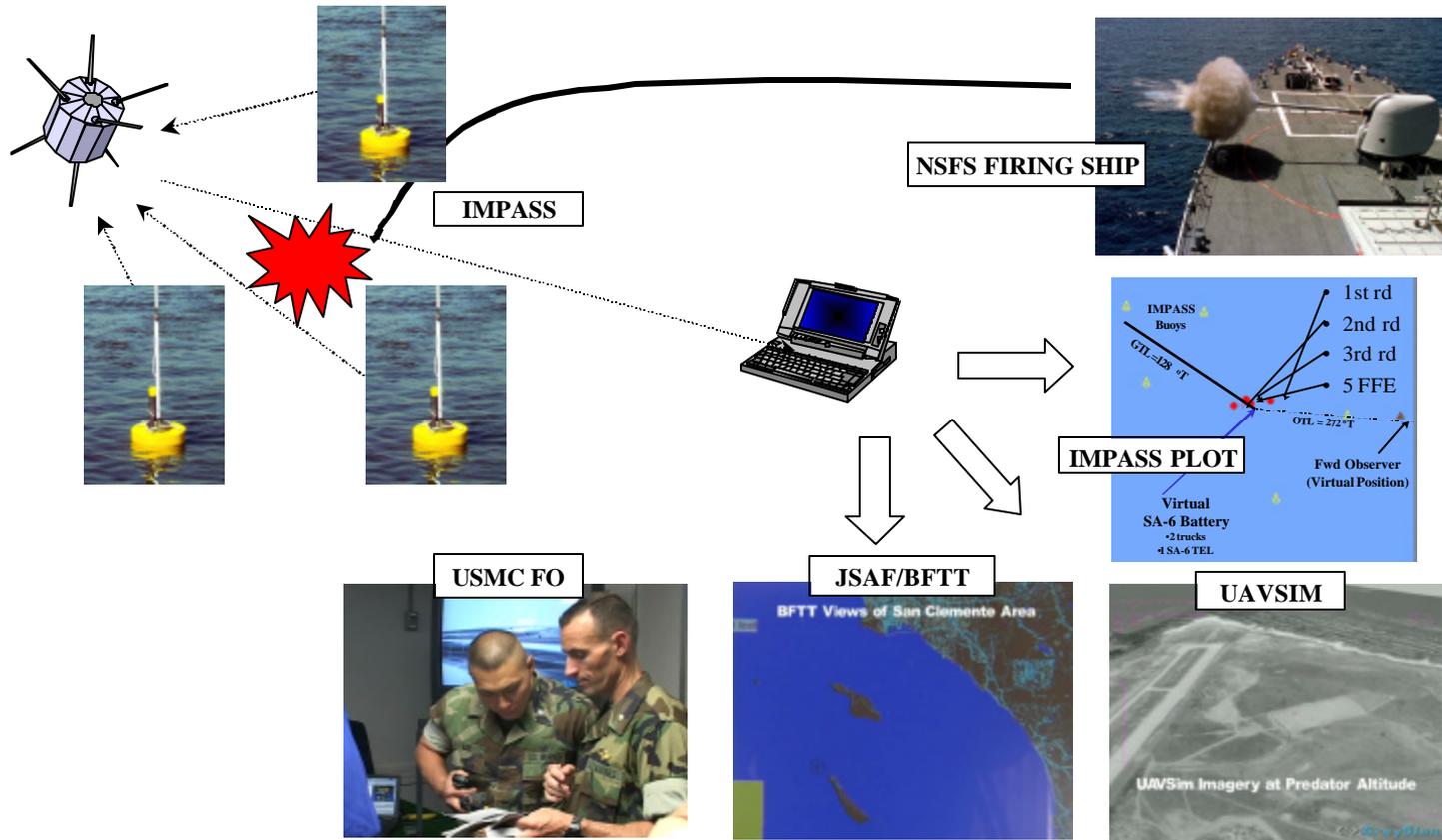
NSFS VAST System

(NAVAL SURFACE FIRE SUPPORT)

NSFS VAST
Naval Surface Fire Support
Concept Description

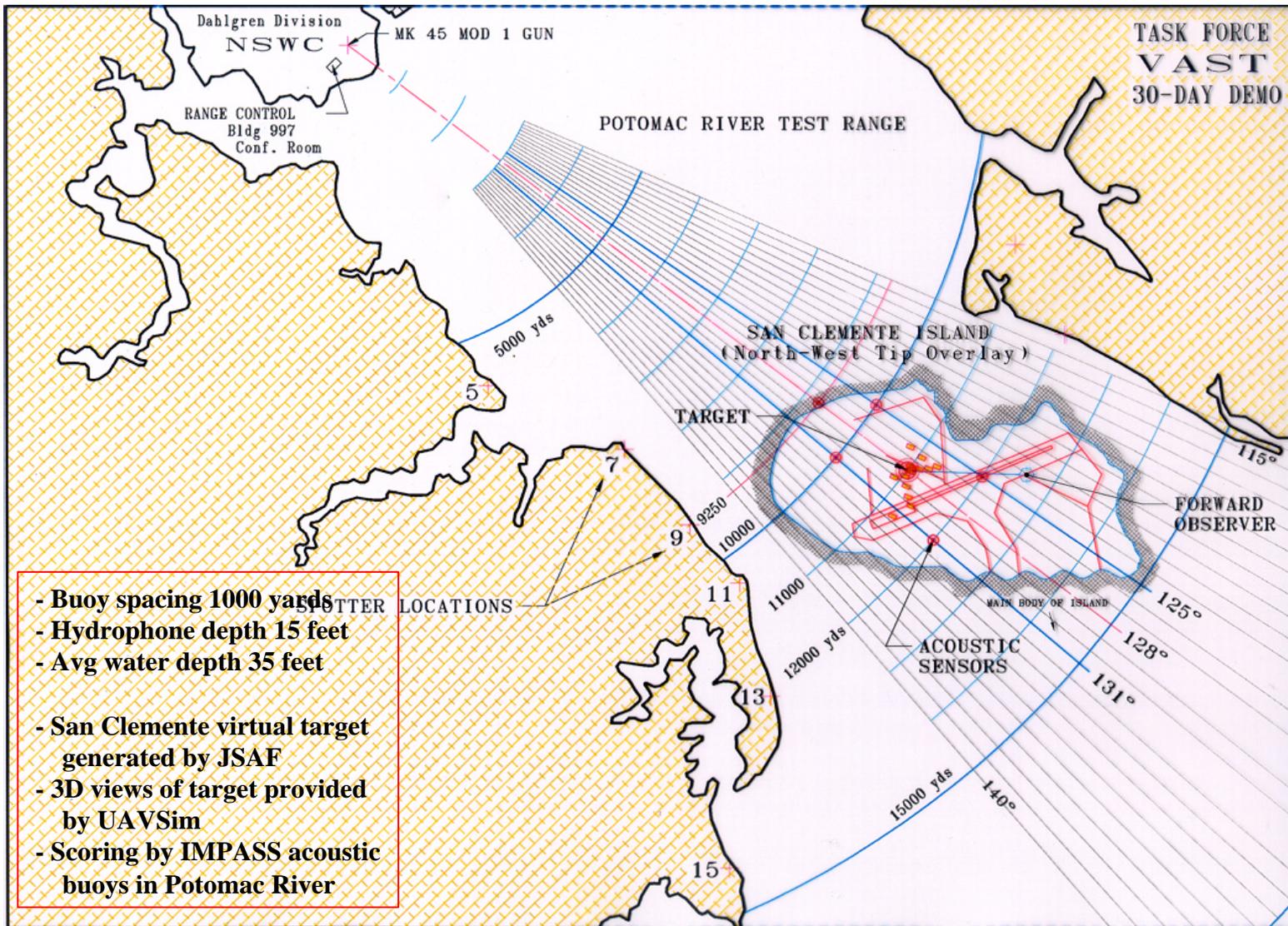


NSFS VAST Concept



An acoustic buoy-based, ship-deployed, sailor-operable training system for qualifying ship's crews and USMC forward observers in Naval Surface Fire Support that is fully compatible with the already deployed Battle Force Tactical Trainer (BFTT)

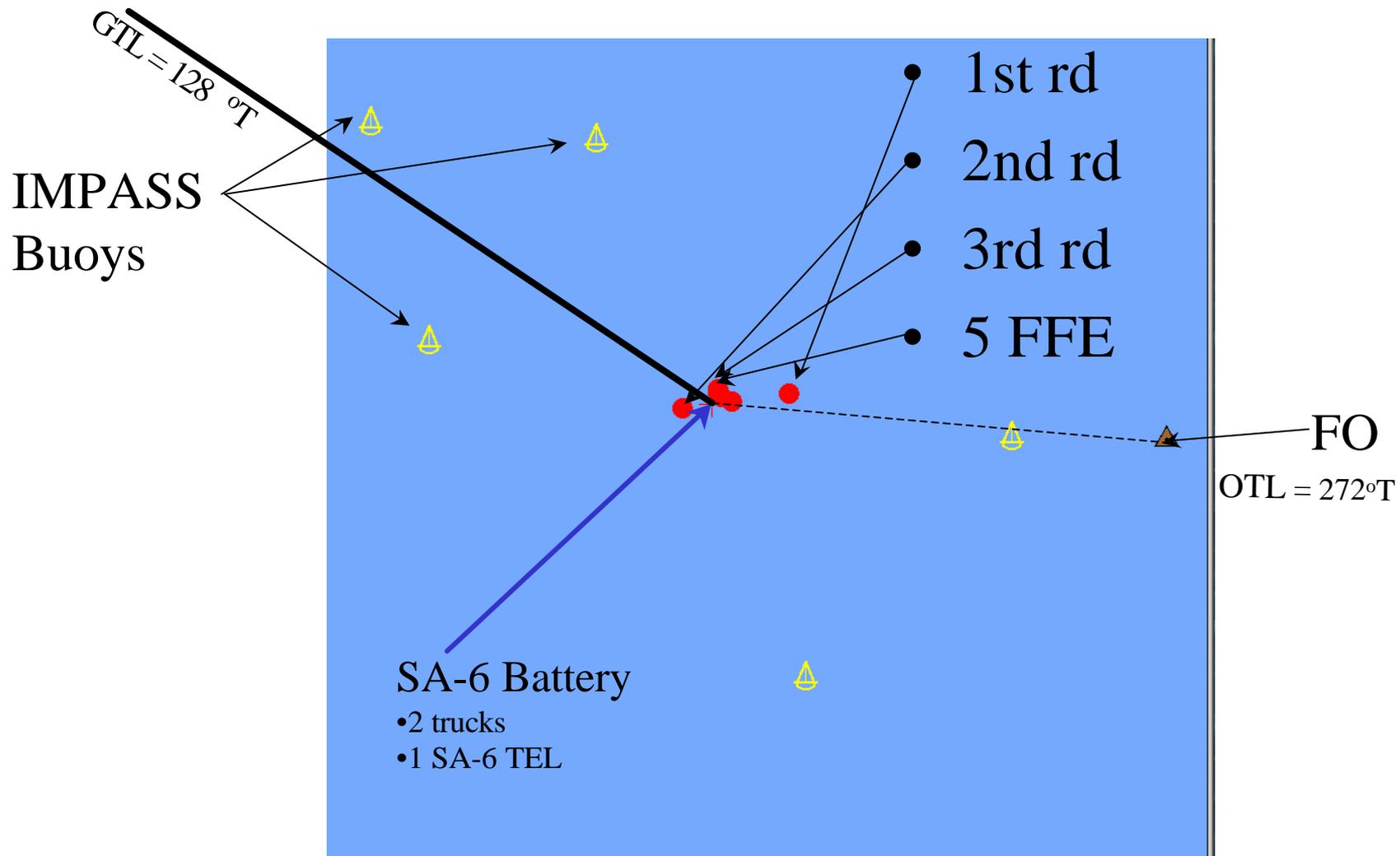
Potomac River Range & San Clemente Overlay



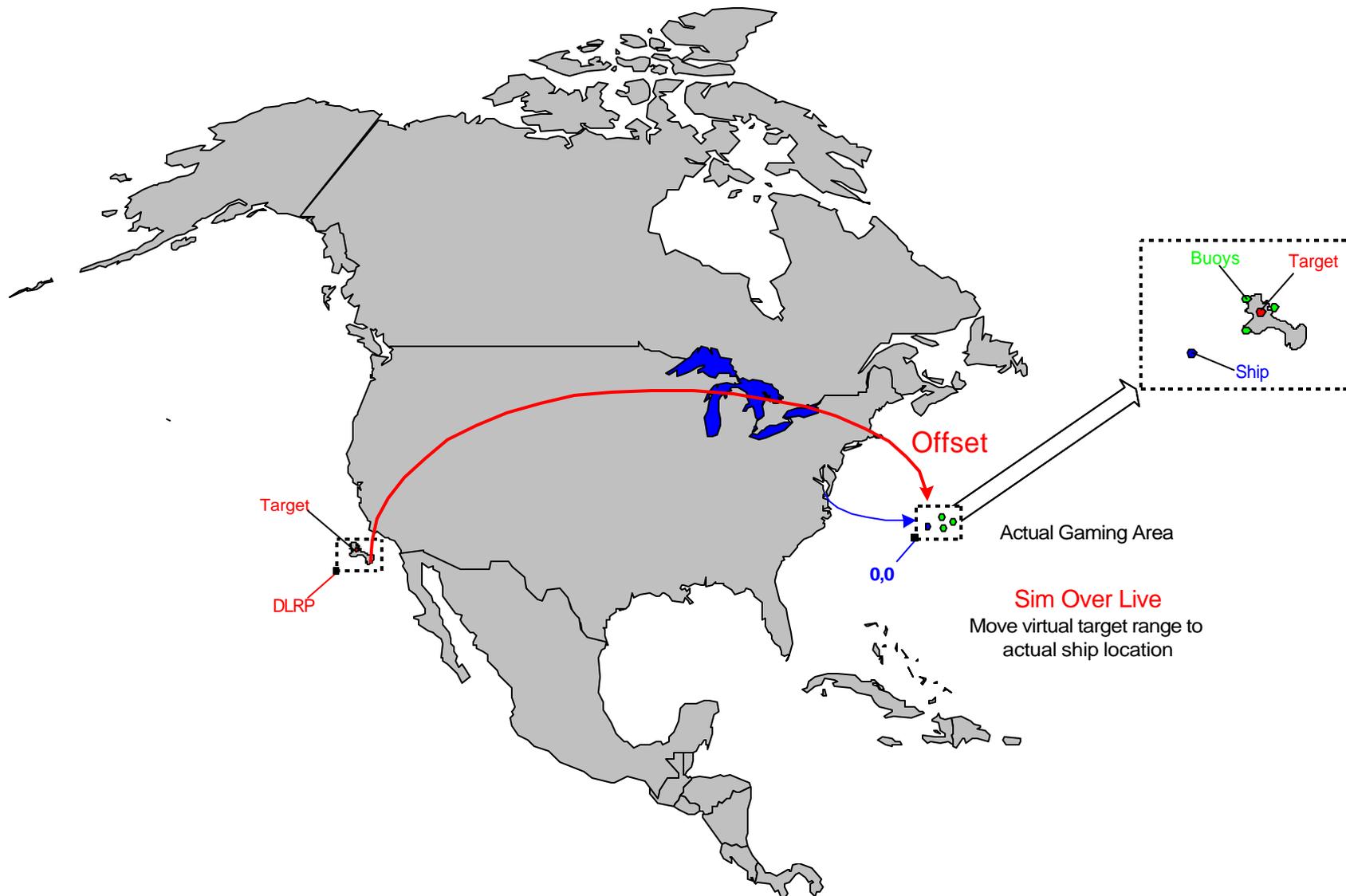
Forward Observer's Viewpoint



Spotting of completed Fire Mission



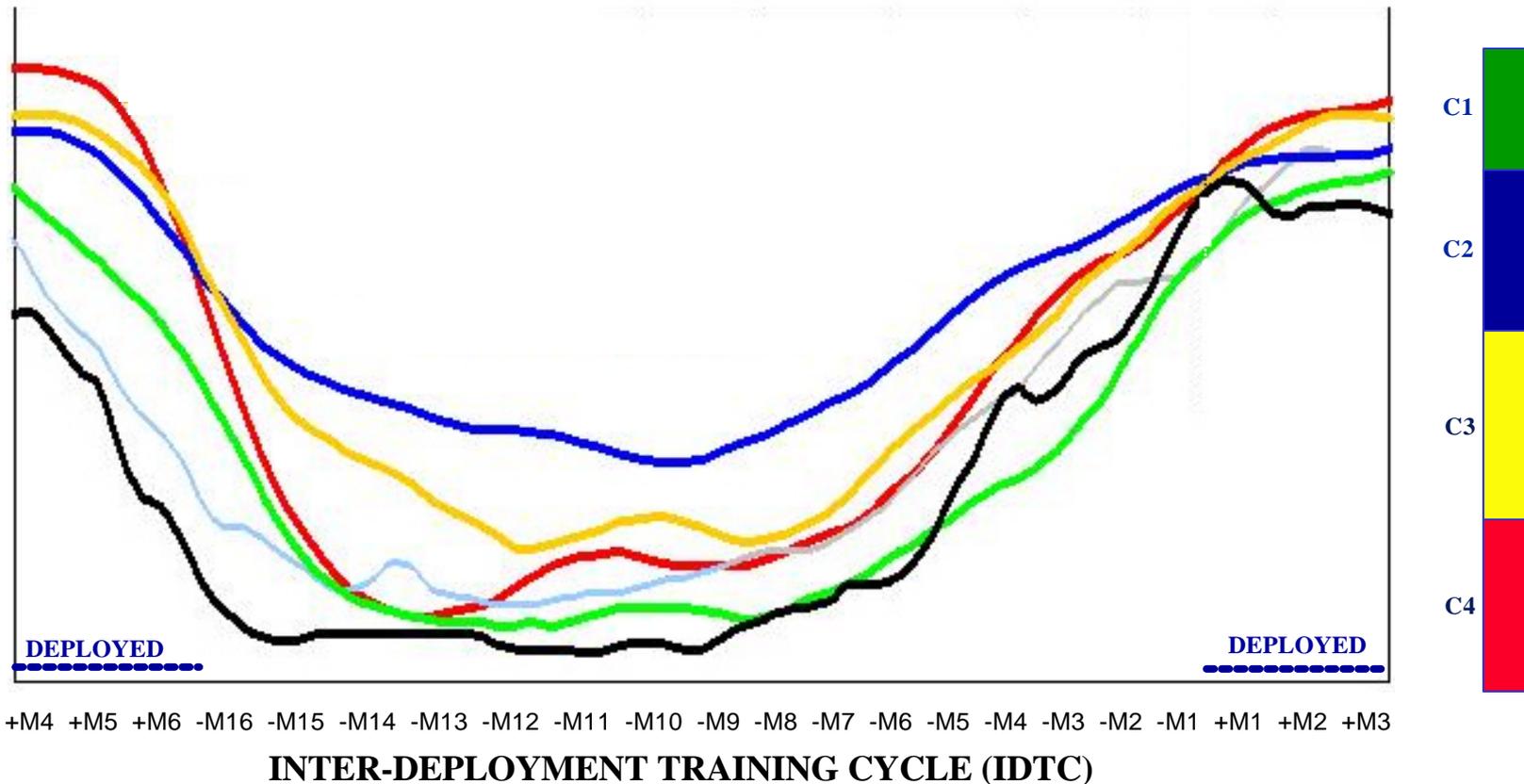
VAST "At-Sea" Concept



VAST “In-Port” Concept



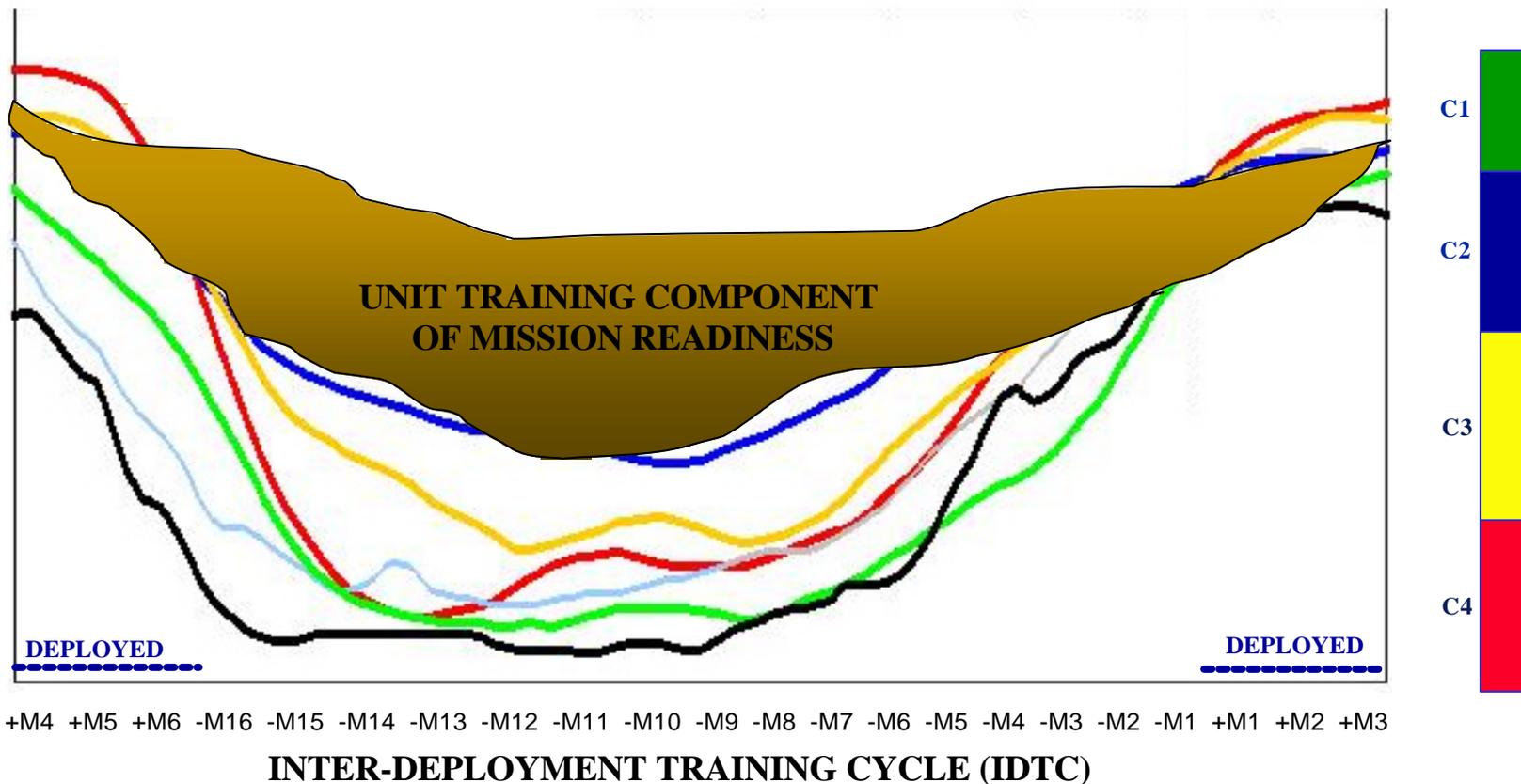
MISSION READINESS OVER THE IDTC



MISSION READINESS COMPRISED OF:

Mobility Status	Maintenance Completion Rates	Combat System Certifications
Munitions/Stores/Spares Load	Personnel Manning Levels	Unit Training

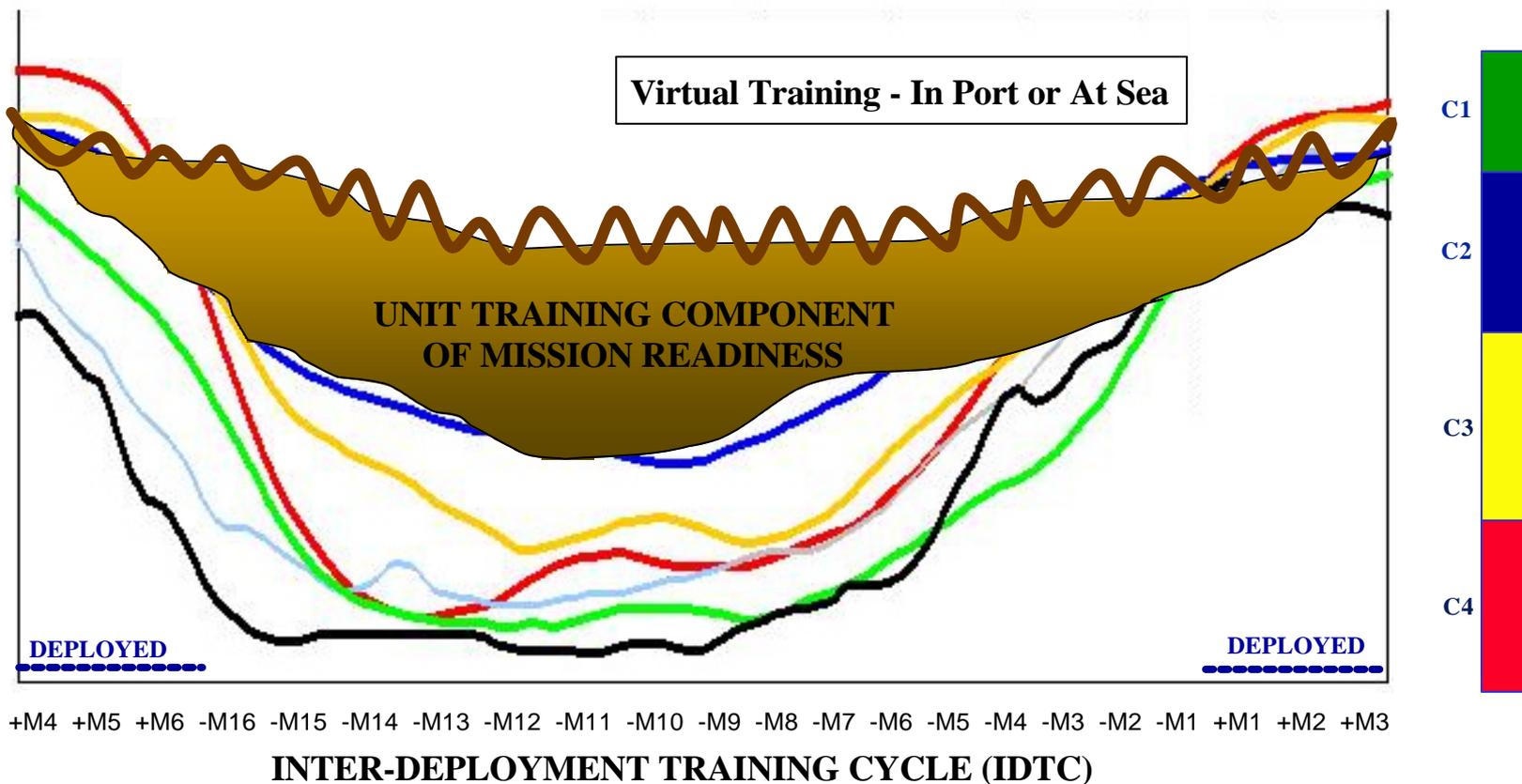
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EFFECT OF VAST ON THE IDTC “BATHHTUB”



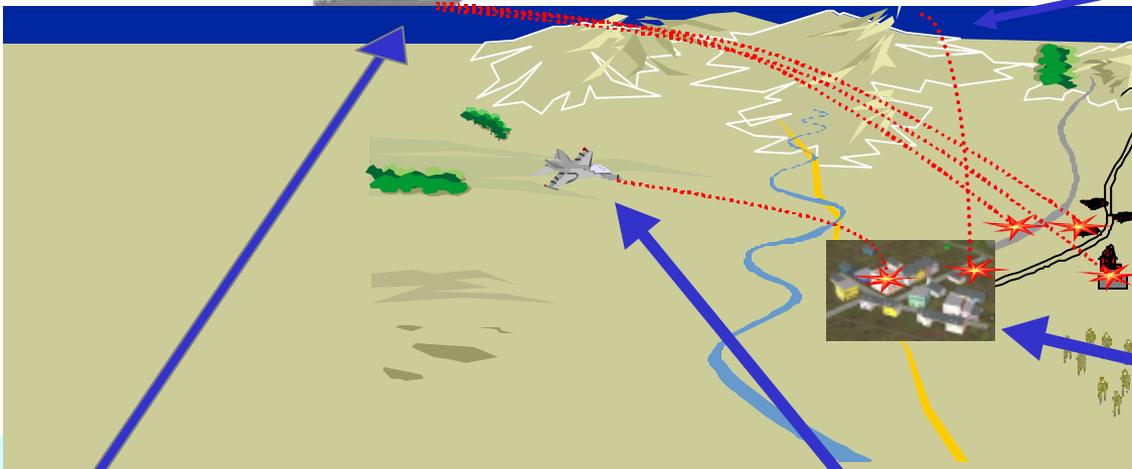
Frequent use of constructive training maintains team proficiency and cohesion. Combat readiness no longer dependent on underway time and range availability.

Concept for the Future: Joint Force Training in Virtual Battlespace

Live Warfighters and Weapons, Mix of
Live and Synthetic Terrain



**USW
Land Attack**



**Joint Urban Ops
Rehearsal**



**TACAIR
Mission
Planning**



NSFS VAST
Naval Surface Fire Support
Concept Description

